In the Claims: Amend the claims as follows.

1. (currently amended) A device for testing a neutral electrode for use in electrosurgery, comprising a measuring surface which is formed by a plurality of measuring electrodes, whereon the neutral electrode may be applied, wherein each measuring electrode of the measuring surface is connected to an equivalent resistance circuit representing layers of the human skin, including at least the hypodermis including fatty tissue, ~~and consisting of~~ each said measuring electrode having at least two resistances, wherein the equivalent resistance circuit is in thermal contact with at least one temperature sensor having a spatial measuring range, characterized in that at least one resistance of the equivalent resistance circuit is formed by a reactive resistance representing the hypodermis including fatty tissue for varying the thickness of the hypodermis including fatty tissue, without an increase in temperature of the reactive resistance representing the hypodermis.

2. (previously presented) The device according to claim 1, characterized in that the reactive resistance is formed by a capacitance.

3. (cancelled)

4. (previously presented) The device according to any one of claims 1 to 2, which is connectable to an alternating voltage source when the neutral electrode is applied, characterized in that the alternating voltage source has a variable frequency.

5. (previously presented) The device according to any one of the claims 1 to 2, characterized in that the measuring electrodes with the associated equivalent resistance circuits are arranged in the form of a matrix of columns and rows.

6. (currently amended) The device according to claim 5, characterized in that each equivalent resistance circuit has a central node which is connected to ~~one~~ a terminal each of four horizontal equivalent resistances and to ~~one~~ a terminal each of a first and a second vertical equivalent resistance, wherein the other ends of the horizontal equivalent resistances are connected to the horizontal equivalent resistances of the equivalent resistance circuits adjacent in the column and row directions, and wherein the other terminal of the first vertical equivalent resistance is connected to the measuring electrode and the other terminal of the second vertical equivalent resistance is connected to ground via the reactive resistance.

7.(previously presented) The device according to claim 5, characterized in that the equivalent resistance circuits associated with the measuring electrodes arranged along the periphery of the measuring surface are each connected to a peripheral impedance circuit with at least one associated temperature sensor.

8.(currently amended) The device according to claim 7, characterized in that each peripheral impedance circuit is connected to ~~the~~ a terminal of ~~the~~ a horizontal equivalent resistance, which is unconnected at the periphery, of ~~the~~ an equivalent resistance circuit associated with the measuring electrode situated at the periphery of the measuring surface.

9.(currently amended) The device according to claim 7, characterized in that each peripheral impedance circuit consists of two, serially connected peripheral cells, wherein each peripheral cell has a central node connected to ~~one~~ a terminal of each of four horizontal peripheral resistances, which correspond to the four horizontal equivalent resistances, and to ~~the~~ a terminal of a vertical peripheral resistance, which corresponds to ~~the~~ a second vertical equivalent resistance, wherein the other ends of each of the horizontal peripheral resistances

are connected to ~~the~~ a horizontal equivalent resistance or ~~the~~ a horizontal peripheral resistance of the equivalent resistance circuits or peripheral cells adjacent in the column and row directions, and wherein the other terminal of the vertical peripheral resistance is connected to ground via the reactive resistance.

10.(previously presented) The device according to claim 7, characterized in that each peripheral impedance circuit is connected to ground via a terminal resistance circuit.

11.(previously presented) The device according to claim 5, characterized in that for each row or each column of the matrix of measuring electrodes and associated equivalent resistance circuits, a common horizontal equivalent resistance representing the layers of the human skin is provided which is arranged outside the spatial measuring range of the temperature sensor.

12.(previously presented) The device according to claim 11, characterized in that one terminal of the common horizontal equivalent resistances is connected to the equivalent resistance circuits associated with the measuring electrodes of the row or of the column.

13.(previously presented) The device according to any one of claims 1 to 2, characterized in that the temperature sensors in thermal contact with the equivalent resistance circuits are formed in a generally known manner by bipolar transistors.

14.(currently amended) Method of use of a device, the device comprising a measuring surface which is formed by a plurality of measuring electrodes, whereon a neutral electrode may be applied, wherein each measuring electrode of the measuring surface is connected to an

equivalent resistance circuit representing layers of the human skin, including at least the hypodermis including fatty tissue, ~~and consisting of~~ each said measuring electrode having at least two resistances, which equivalent resistance circuit is in thermal contact with at least one temperature sensor, characterized in that at least one resistance of the equivalent resistance circuit is formed by a reactive resistance, representing the hypodermis including fatty tissue, the method comprising monitoring a neutral electrode contact quality monitoring circuit (CQM) of an electrosurgical apparatus.

15.(currently amended) A device for testing a neutral electrode for use in electrosurgery, comprising a measuring surface which is formed by a plurality of measuring electrodes, whereon the neutral electrode may be applied, wherein each measuring electrode of the measuring surface is connected to an equivalent resistance circuit representing layers of the human skin, including at least the hypodermis including fatty tissue, ~~and consisting of~~ each said measuring electrode having at least two resistances, which equivalent resistance circuit is in thermal contact with at least one temperature sensor, wherein the measuring electrodes are provided on one side of a measuring circuit board forming the measuring surface and the resistances of the associated equivalent resistance circuits are arranged on the opposite side of the measuring circuit board, characterized in that the temperature sensors are arranged on a further circuit board which is spaced from the measuring circuit board by a drilled board provided with through holes, wherein the temperature sensors facing the resistances of the equivalent resistance circuits project into the through holes of the drilled board.

16.(currently amended) The device according to claim 15, characterized in that the measuring electrodes are arranged in the form of a matrix on the drilled board with through

holes and that the through holes are arranged concentrically with ~~the centers of the~~ respective measuring electrodes.

17.(previously presented) The device according to claim 15 or 16, characterized in that the space between the resistances of the equivalent resistance circuits and the temperature sensors within the through holes is filled with a heat-conducting material.

18.(previously presented) The device according to claim 15 or 16, characterized in that the space between the resistances of the equivalent resistance circuits is filled with a heat-insulating material.

19.(previously presented) The device according to any one of the claims 15 to 16, characterized in that the resistances of the equivalent resistance circuits and the temperature sensors are formed by SMD components.

20.(previously presented) The device according to any one of the claims 15 to 16, characterized in that the resistances of the equivalent resistance circuits are arranged in the immediate vicinity of the associated measuring electrode on the opposite side of the measuring circuit board and are connected to it via at least one feedthrough.